AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) An intake valve for a combustion engine having an intake port, the intake valve comprising:

a valve guide having an end proximate the intake port, the valve guide having inner and outer surfaces that define a thickness T;

a valve shield extending from the end of the valve guide and extending into the intake port, the valve shield having inner and outer surfaces that define a thickness t; and

a valve stem arranged proximate the valve guide and valve shield;

wherein the thickness t is equal to or less than about 1/4 of the thickness T;

wherein the valve guide and valve stem define a first clearance dimension therebetween;

wherein the valve shield and valve stem define a second clearance dimension therebetween; and

wherein the second clearance dimension is equal to or greater than the first clearance dimension.

2. (original) The intake valve of Claim 1, wherein:

the valve stem is movable relative to the valve guide and has a defined displacement with respect thereto; and

the valve shield has a length equal to or greater than the defined displacement.

3. (currently amended) The intake valve of Claim 1, wherein:

the second clearance dimension is equal to or greater than about two times the first clearance dimension; and

the thickness t is equal to or greater than about 1/8 of the thickness T.

4. (original) The intake valve of Claim 3, wherein:

the second clearance dimension is equal to or greater than about five times the first clearance dimension.

5. (original) The intake valve of Claim 1, wherein:

the valve stem includes a first outer surface disposed at the intake port;

the valve shield includes a second outer surface disposed at the intake port;

the second clearance dimension is sized such that the second outer surface has a lower operating temperature than the first outer surface.

6. (original) The intake valve of Claim 1, wherein:

the valve shield at least partially surrounds the valve stem such that the valve stem is shielded from direct exposure to a fuel containing high boiling fraction.

7. (currently amended) A valve shield for a combustion engine having an intake port, a valve guide having an end proximate the intake port, and a valve stem movable relative to the valve guide and having a defined displacement with respect thereto, the valve guide having inner and outer surfaces that define a thickness T, the valve shield comprising:

a first end configured to be proximate the end of the valve guide;

a second end at a defined distance from the first end;

an outer surface disposed between the first and second ends and configured for facing the intake port; and

an inner surface disposed between the first and second ends and configured for facing the valve stem;

wherein the defined distance is equal to or greater than the defined displacement;

wherein the inner and outer surfaces of the valve shield define a thickness t; and

wherein the thickness t is equal to or less than about 1/4 of the thickness T.

8. (original) The valve shield of Claim 7, wherein the valve stem includes an outer surface disposed at the intake port, and further wherein:

the outer surface of the valve shield is disposed at a distance from the outer surface of the valve stem such that the outer surface of the valve shield has a lower operating temperature than the outer surface of the valve stem.

9. (currently amended) The valve shield of Claim 7, wherein:

the outer surface of the valve shield is configured to at least partially ~~surrounds~~ surround the valve stem such that in response to a combustion process at the combustion engine the valve stem is shielded from direct exposure to a fuel containing high boiling fraction.

10. (currently amended) The valve shield of Claim 8, wherein:

~~the inner and outer surfaces of the valve shield define a thickness t;~~

~~the inner and outer surfaces of the valve guide define a thickness T; and~~

thickness t is equal to or greater than about 1/8 of thickness T ~~and equal to or less than about 1/4 of thickness T~~.

11-12. (canceled)

13. (currently amended) An intake valve for a combustion engine having an intake port, the intake valve comprising:

a valve guide having an end proximate the intake port, the valve guide having inner and outer surfaces that define a thickness T;

a valve shield extending from the end of the valve guide and extending into the intake port, the valve shield having inner and outer surfaces that define a thickness t; and

a valve stem arranged proximate the valve guide and valve shield, the valve shield being disposed to shadow the valve stem with respect to a fuel being directed to the intake port;

wherein the thickness t is equal to or less than about 1/4 of the thickness T;

wherein the valve guide and valve stem define a first clearance dimension therebetween;

wherein the valve shield and valve stem define a second clearance dimension therebetween; and

wherein the second clearance dimension is greater than the first clearance dimension.

14. (currently amended) A valve shield for a combustion engine having an intake port, a valve guide having an end proximate the intake port, and a valve stem movable relative to the valve guide and having a defined displacement with respect thereto, the valve guide having inner and outer surfaces that define a thickness T, the valve shield comprising:

a first end configured to be proximate the end of the valve guide;

a second end at a defined distance from the first end;

an outer surface disposed between the first and second ends and configured for facing the intake port; and

an inner surface disposed between the first and second ends and configured for facing the valve stem;

wherein the inner and outer surfaces of the valve shield define a thickness t, the thickness t being equal to or greater than about 1/8 of thickness T and equal to or less than about 1/4 of thickness T; and

wherein the defined distance is equal to or greater than the defined displacement such that at an extended position at the defined displacement a portion of the valve stem is shadowed by the valve shield with respect to a fuel directed to the intake port.

15. (new) A valve shield for a combustion engine having an intake port, a valve guide having an end proximate the intake port, and a valve stem with an outer surface movable relative to the valve guide and having a defined displacement with respect thereto, the valve guide having inner and outer surfaces that define a thickness T, the valve shield comprising:

a first end configured to be proximate the end of the valve guide;

a second end at a defined distance from the first end;

an outer surface disposed between the first and second ends and configured for facing the intake port; and

an inner surface disposed between the first and second ends and configured for facing the valve stem;

wherein the defined distance is equal to or greater than the defined displacement;

wherein the inner and outer surfaces of the valve shield define a thickness t;

wherein the thickness t is equal to or less than about 1/4 of the thickness T, and the thickness t is equal to or greater than about 1/8 of thickness T; and

wherein in response to a combustion process at the combustion engine, the outer surface of the valve shield has a lower operating temperature than the outer surface of the valve stem thereby tending to reduce the amount of evaporation of low boiling fraction and accumulation of high boiling fraction on the outer surface of the valve stem.

16. (new) An intake valve for a combustion engine having an intake port, the intake valve comprising:

a valve guide having an end proximate the intake port;

a valve shield extending from the end of the valve guide and extending into the intake port; and

a valve stem arranged proximate the valve guide and valve shield, the valve shield being disposed to shadow the valve stem with respect to a fuel being directed to the intake port;

wherein the valve guide and valve stem define a first clearance dimension therebetween;

wherein the valve shield and valve stem define a second clearance dimension therebetween; and

wherein the second clearance dimension is equal to or greater than about two times the first clearance dimension, such that in response to a combustion process at the combustion engine the outer surface of the valve shield has a lower operating temperature than the outer surface of the valve stem thereby tending to reduce the amount of evaporation of low boiling fraction and accumulation of high boiling fraction on the outer surfaces of the valve stem and the valve shield.

17. (new) The intake valve of Claim 16, wherein:

the valve shield is configured to shadow a portion of the valve stem from direct exposure to fuel containing high boiling fraction.